Claims

1. A myocardial cell of a mammal, wherein the myocardial cell contains an adenoviral vector sequence for simultaneous expression of G protein coupled receptor EDG2 and a cellular marker.

2. The myocardial cell of claim 1, wherein the cellular marker is a fluorescent protein.

3. The myocardial cell of claim 2, wherein the cellular marker is Green Fluorescent Protein.

4. The myocardial cell of claim 2, wherein the adenoviral vector sequence comprises of a recombinant E1/E3 deficient adenovirus which expresses the G protein coupled receptor EDG2 and the fluorescent protein under control of two independent promoters.

5. The myocardial cell of claim 4 wherein the two independent promoters are two CMV promoters.

6. A myocardial cell of a mammal, wherein the myocardial cell expresses G protein coupled receptor EDG2 and a cellular marker.

7. The myocardial cell of claim 6, wherein cellular marker is a fluorescent protein.

8. The myocardial cell of claim 6 wherein the mammal is a rabbit, mouse or rat.

9. A method of producing of a myocardial cell according to claim 1, comprising:
   a] removing the heart of a mammal,
   b] perfusing the removed heart, digesting the removed heart with collagenase, and isolating cardiomyocytes, and

c] infecting the isolated cardiomyocytes with an adenoviral vector comprising a recombinant E1/E3 deficient adenovirus which expresses the G protein coupled receptor EDG2 and a cellular marker under control of two independent promoters.

10. The method of claim 9, wherein the cellular marker is a fluorescent protein.

11. A mammal having a myocardium comprising cells containing an adenoviral vector for simultaneous expression of a G protein coupled receptor EDG2 and a cellular marker.

12. The mammal of claim 11, wherein the adenoviral vector sequence comprises of a recombinant E1/E3 deficient adenovirus which expresses the G protein coupled receptor EDG2 and a fluorescent marker under control of two independent promoters.

13. The mammal of claim 11 wherein the two independent promoters are two CMV promoters.

14. A mammal having a myocardium comprising myocardial cells expressing G protein coupled receptor EDG2 and a cellular marker.

15. The mammal of claim 14, wherein the cellular marker is a fluorescent protein.

16. The mammal of claim 14, wherein the mammal is a rabbit, a mouse, or a rat.

17. A method of preparing a mammal according to claim 11, the method comprising:

a] providing an adenoviral vector sequence for simultaneous expression of G protein coupled receptor EDG2 and a cellular marker,

b] providing a mammal, and

c] transferring the adenoviral vector sequence of step a] into the myocardium of the mammal from step b] by means of a catheter.

18. A method for identifying a compound which modifies the activity of G protein coupled receptor EDG2, the method comprising:

a] providing a transformed cell from a heart muscle, wherein the transformed cell expresses the receptor EDG2 or a fusion protein comprising the receptor EDG2,
b] providing a chemical compound,
c] bringing the transformed cell from step a] into contact with the chemical compound of step b],
d] determining the contractility of the transformed cell from c] and the relation of the contractility of the transformed cell from c] to the contractility of a transformed cell which has the same characteristics as a cell from a] but has not been brought into contact with a chemical compound from c],

wherein a relative enhancement or reduction of contractility of the cell which has brought in contact with a chemical compound according to c] demonstrates the ability of said compound to modify the activity of receptor EDG2.

19. The method of claim 18, wherein the cell of step a] is treated with at least one of isoproterenol and lysophosphatidic acid before it is brought into contact with the chemical compound in step c].

20. A method for identifying a compound which modifies the activity of G protein coupled receptor EDG2, the method comprising:

a] providing a transformed cell from a heart muscle, wherein the transformed cell expresses the receptor EDG2 or a fusion protein comprising the receptor EDG2,
b] providing a chemical compound,

c] bringing the transformed cell from step a] into contact with the chemical compound of step b],

d] determining the contractility of the transformed cell from c] and the relation of the contractility of the transformed cell from c] to the contractility of a transformed cell which has the same characteristics as a cell from a] but which does not express the receptor EDG2 or a fusion protein comprising the receptor EDG2,

wherein a relative enhancement or reduction of contractility of the cell which has brought in contact with a chemical compound according to c] demonstrates the ability of said compound to modify the activity of receptor EDG2.

21. The method of claim 20, wherein the cell of step a] is treated with at least one of isoproterenol and lysophosphatidic acid before it is brought into contact with the chemical compound in step c].

22. A recombinant adenoviral vector comprising a polynucleotide selected from the group consisting of:

a] SEQ ID NO. 5,
b] a polynucleotide at least 95 % identical to SEQ ID NO. 5, and
c] a polynucleotide of at least of the same length as the polynucleotide of SEQ ID NO. 5 and which hybridizes to a polynucleotide of SEQ ID NO. 5 when applying highly stringent hybridization conditions.

23. A recombinant adenoviral vector comprising a polynucleotide sequence encoding a protein comprising amino acids 1 – 364 of SEQ ID NO. 2.

24. The recombinant adenoviral vector of claim 23, comprising a polynucleotide sequence encoding SEQ ID NO. 2.